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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/045,385	03/20/1998	YASUHIRO MATSUSHIMA	48240	9820

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EXAMINER
PARKER, KENNETH

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/045,385	MATSUSHIMA ET AL.
	Examiner	Art Unit
	Kenneth A Parker	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-5,7 and 18-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-5,7 and 18-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. **Claims 3, 5, 7 and 18-20 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al, U.S. Patent #5933,208, in view of Shirahashi et al U.S. Patent # 5,285,301, Sato et al, U.S. Patent # 6,081,305, and Miyawaki et al, U.S. Patent # 5,822,028 and Miyawaki et al, U.S. Patent # 5,757,054, JP 7-152022, Ono U.S. Patent # 6,057,900, and Masaki U.S. Patent # 4,538,884.**

Kim et al discloses a first insulating substrate 30 with picture element electrodes in a matrix (fig 2), a second opposite substrate with a counter electrode having portions above each pixel electrode, aligned and sealed with liquid crystal interposing (mentioned in the description of the prior art (col. 1 and 2), with the first substrate having switching elements line driving means, color filters and light shielding layers corresponding to the transistors. The Kim reference is centered around avoiding the problems of having a black matrix on the other substrate (col. 25-41), but does not show the peripheral portions, so the extension of the black matrix therein cannot be determined.

The secondary references show that black matrix layers using in the display area conventionally were extended non-display area. The use of a black matrix extends around the perimeter was notoriously well known (and realistically necessary for three distinct reasons:

1) Conventionally (if not always), the black matrix surrounds each pixel, and so the outer parts around the outer pixels end of framing the outside edge. This is shown clearly by Masaki, figure 2, which shows the way the pattern of square boxes ends ups up with a frame which surrounds the pixel area. This pattern is clearly close to the edge of the outer pixel, as it is right upon the pixel (in fact it substantially defines the edge of the pixels). Additionally, for the pattern shown by Kim in figure 2a to exist around all pixels, this condition would have to be met.

2) It was well known to prevent light leakage around the edge of the display region (so the frame portion is wider than the interpixel portion. This is shown in references and Ono et al (see cover figure), Shirahashi et al '301 and JP 7-152022. This was well known for the benefit of preventing light leakage around the edge of the display, and was "close" to the outer pixels, as shown by the references and required because if it was far, light would have leaked around the edges.

3) It was well known for shielding for drive circuits, and would have been obvious for that reason. Peripheral driver circuits had to be covered to prevent activation from light, and as driver circuits in the periphery were well known as important for reducing the cost of connecting separate drivers, and it would have been obvious to have driver circuits in the periphery for this benefit, and then cover them as was established as necessary to prevent activation from light. Miyawaki et al '028 and '486, and Iida, US006388723B1 evidences this, disclosing such a

devices. This motivation does not include the close to the display region covering, but in these devices the motivations above still exist (reasons 1 and 2), so the obviousness to cover the circuits does not explicitly make obvious covering the region close to the display, but fact that the reasons 1 and 2 above still exist as reasons means that in displays with the circuits being covered for reason of protecting the circuit from light, the close reasons were still typically covered (see the three secondary references).

Therefore, as all of the secondary reference show black matrixes extending into the non-display region regardless of which substrate had them, one of ordinary skill would have been motivated to do so with the black matrix of Kim as it was known to be necessary for reasons 1 and 2 above, and well known to be required for the benefit of integrated drivers (reason 3) above. Further, please note that the primary reference further shows that one of ordinary skill would have used the black matrix for the extension portion to be on the primary substrate, as Km's entire focus is to have the black matrix on the first substrate for alignment and other reasons. Further, to not employ the conventional black matrix method of extending the employed black matrix would have required and additional otherwise layer, further reason why on of ordinary skill would have stuck by the conventional method of using the black matrix layer in the main portion for the extended portion as well.

The counter electrode having portions which are parallel would always be present, as portions can be defined across from each pixel electrode.

2. Claims 3-5, 7 and 18-20 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al, U.S. Patent #5,585,951, in view of Shirahashi et al U.S. Patent # 5,285,301, Sato et al, U.S. Patent # 6,081,305 and Miyawaki et al, U.S. Patent # 5,822,028, Miyawaki et al, U.S. Patent #5,708,486, JP 7-152022, Ono, U.S. Patent # 6,057,900, and U.S. Patent # Masaki 4,538,884.

Noda et al discloses a first insulating substrate with picture element electrodes in a matrix, a second opposite substrate with a counter electrode having portions above each pixel electrode, aligned and sealed with liquid crystal interposing, with the first substrate having switching elements line driving means, color filters and light shielding layers corresponding to the transistors. The Noda reference is centered around avoiding the problems of having a black matrix on the other substrate (col. 26-45), but does not show the peripheral portions, so the extension of the black matrix therein cannot be determined.

The secondary references show that black matrix layers using in the display area conventionally were extended non-display area. The use of a black matrix extends around the perimeter was notoriously well known (and realistically necessary for three distinct reasons:

1) Conventionally (if not always), the black matrix surrounds each pixel, and so the outer parts around the outer pixels end of framing the outside edge. This is shown clearly by Masaki, figure 2, which shows the way the pattern of square boxes ends ups up with a frame which surrounds the pixel area. This pattern is clearly close to the edge of the outer pixel, as it is right upon the pixel (in fact it substantially defines the edge of the pixels).

2) It was well known to prevent light leakage around the edge of the display region (so the frame portion is wider than the interpixel portion. This is shown in references and Ono et al (see cover figure), Shirahashi et al '301 and JP 7-152022. This was well known for the benefit of preventing light leakage around the edge of the display, and was "close" to the outer pixels, as shown by the references and required because if it was far, light would have leaked around the edges.

3) It was well known for shielding for drive circuits, and would have been obvious for that reason. Peripheral driver circuits had to be covered to prevent activation from light, and as driver circuits in the periphery were well known as important for reducing the cost of connecting separate drivers, and it would have been obvious to have driver circuits in the periphery for this benefit, and then cover them as was established as necessary to prevent activation from light. Miyawaki et al '028 and '486, and Iida, US006388723B1 evidences this, disclosing such a devices. This motivation does not include the close to the display region covering, but in these devices the motivations above still exist (reasons 1 and 2), so the obviousness to cover the circuits does not explicitly make obvious covering the region close to the display, but fact that the reasons 1 and 2 above still exist as reasons means that in displays with the circuits being covered for reason of protecting the circuit from light, the close reasons were still typically covered (see the three secondary references).

Therefore, as all of the secondary reference show black matrixes extending into the non-display region regardless of which substrate had them, one of ordinary skill would have been motivated to do so with the black matrix of Noda as it was known to be necessary for reasons 1 and 2 above, and well known to be required for the benefit of integrated drivers (reason 3) above. Further, please note that the primary reference further shows that one of ordinary skill would have used the black matrix for the extension portion to be on the primary substrate, as Noda's entire focus is to have the black matrix on the first substrate for alignment and other reasons. Further, to not employ the conventional black matrix method of extending the employed black matrix would have required and additional otherwise layer, further reason why on of ordinary skill would have stuck by the conventional method of using the black matrix layer in the main portion for the extended portion as well.

Kawabe et al employs an electrodeposition method for putting down the color filters. All the above listed secondary references show active matrix devices with black layers in the extending in the peripheral regions, and therefore provide evidence of this assertion of the well known status of these layers for the above mentioned purposes.

The counter electrode having portions which are parallel would always be present, as portions can be defined across from each pixel electrode.

3. **Claims 3- 5, 7 and 18-20 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al, U.S. Patent #6,162,654, in view of Shirahashi et al U.S. Patent # 5,285,301, Sato et al, U.S. Patent # 6,081,305 and Miyawaki et al, U.S. Patent # 5,822,028, Miyawaki et al, U.S. Patent #5,708,486, JP 7-152022, Ono, U.S. Patent # 6,057,900, and Masaki, U.S. Patent # 4,538,884.**

Kawabe et al discloses a first insulating substrate with picture element electrodes in a matrix, a second opposite substrate with a counter electrode having portions above each pixel electrode, aligned and sealed with liquid crystal interposing, with the first substrate having switching elements line driving means, color filters and light shielding layers corresponding to the transistors. It is not clear from **Kawabe et al** that the black matrix goes around the perimeter. The Kawabe reference is centered around avoiding the problems of having a black matrix on the other substrate (col. 2, lin 10 through col. 3, lines 23), but does not show the peripheral portions, so the extension of the black matrix therein cannot be determined.

The secondary references show that black matrix layers using in the display area conventionally were extended non-display area. The use of a black matrix extends around the perimeter was notoriously well known (and realistically necessary for three distinct reasons:

1) Conventionally (if not always), the black matrix surrounds each pixel, and so the outer parts around the outer pixels end of framing the outside edge. This is shown clearly by Masaki, figure 2, which shows the way the pattern of square boxes ends ups up with a frame which

surrounds the pixel area. This pattern is clearly close to the edge of the outer pixel, as it is right upon the pixel (in fact it substantially defines the edge of the pixels).

2) It was well known to prevent light leakage around the edge of the display region (so the frame portion is wider than the interpixel portion. This is shown in references and Ono et al (see cover figure), Shirahashi et al '301 and JP 7-152022. This was well known for the benefit of preventing light leakage around the edge of the display, and was "close" to the outer pixels, as shown by the references and required because if it was far, light would have leaked around the edges.

3) It was well known for shielding for drive circuits, and would have been obvious for that reason. Peripheral driver circuits had to be covered to prevent activation from light, and as driver circuits in the periphery were well known as important for reducing the cost of connecting separate drivers, and it would have been obvious to have driver circuits in the periphery for this benefit, and then cover them as was established as necessary to prevent activation from light. Miyawaki et al '028 and '486, and Iida, US006388723B1 evidences this, disclosing such a devices. This motivation does not include the close to the display region covering, but in these devices the motivations above still exist (reasons 1 and 2), so the obviousness to cover the circuits does not explicitly make obvious covering the region close to the display, but fact that the reasons 1 and 2 above still exist as reasons means that in displays with the circuits being

covered for reason of protecting the circuit from light, the close reasons were still typically covered (see the three secondary references).

Therefore, as all of the secondary reference show black matrixes extending into the non-display region regardless of which substrate had them, one of ordinary skill would have been motivated to do so with the black matrix of Noda as it was known to be necessary for reasons 1 and 2 above, and well known to be required for the benefit of integrated drivers (reason 3) above. Further, please note that the primary reference further shows that one of ordinary skill would have used the black matrix for the extension portion to be on the primary substrate, as Noda's entire focus is to have the black matrix on the first substrate for alignment and other reasons. Further, to not employ the conventional black matrix method of extending the employed black matrix would have required and additional otherwise layer, further reason why on of ordinary skill would have stuck by the conventional method of using the black matrix layer in the main portion for the extended portion as well.

Kawabe et al employs an electrodeposition method for putting down the color filters. All the above listed secondary references show active matrix devices with black layers in the extending in the peripheral regions, and therefore provide evidence of this assertion of the well known status of these layers for the above mentioned purposes.

The counter electrode having portions which are parallel would always be present, as portions can be defined across from each pixel electrode.

Driver circuits in the periphery was well known for reducing the cost of connecting separate drivers, and would have been obvious for that reason. Miyawaki et al evidences this, disclosing such a device. Further evidence of the well known status is available from Zhang, US005995189 and Iida, US006388723B1.

Response to Amendment

Applicant acquiesced to that is was well known to extend the black matrix into peripheral areas to for the various reasons set forth above. What applicant has argued is that it was not well known to do so on the first substrate. However, as the examiners rejection has been and still is that those of ordinary skill in the art would have been motivated to perform the normal practice of extending the black matrix into the peripheral portion. As all of the references employed as primary reference have black matrixes on the first substrate (in fact that is their main point), but omit any description of the peripheral region, the extending of the black matrix to the peripheral region as has been shown to be the conventional practice regardless of which substrate the black matrix was on as has been clearly shown by the secondary evidence, one of ordinary skill would have been motivated to extend the black matrix into the peripheral areas (as the black matrix was on the first substrate, the resulting extension would have also been on the first substrate. Further, the motivations for those of ordinary skill to use the black matrixes on the primary substrate is

further enhanced by the references avoidance of using the other substrate, and as it would have required and additional layer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

April 6, 2003

KENNETH ALLEN PARKER
PATENT EXAMINER
GAU 2871